Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently amended) A method for identifying a compound that modulates activity of a KIF18A ~~or KLP67A~~ polypeptide, the method comprising:

a) obtaining a test cell containing a KIF18A ~~or KLP67A~~ polypeptide that is at least 95% identical to SEQ ID NO:2 and that localizes to the distal ends of astral microtubules in dividing cells, and a control cell containing [[a]] said KIF18A ~~or KLP67A~~ polypeptide;

b) incubating the test cell with a test compound; and

c) detecting an altered localization of the KIF18A ~~or KLP67A~~ polypeptide in the test cell as compared to the KIF18A ~~or KLP67~~ polypeptide in the control cell, wherein the altered localization is localization to a region other than a growth cone of an interphase cell or the distal ends of astral microtubules of a dividing cell,

wherein an altered localization indicates that the test compound modulates activity of the KIF18A ~~or KLP67A~~ polypeptide.

2. (Currently amended) The method of claim 1, wherein the KIF18A polypeptide ~~has~~ comprises the sequence of ~~GenBank Accession Number AL136819~~ [[(]] SEQ ID NO:2 [[)]].

3. (Withdrawn) The method of claim 1, wherein the KLP67A polypeptide has the sequence of GenBank Accession Number NM_079268 (SEQ ID NO:3).

4. (Original) The method of claim 1, wherein the test compound is an antisense nucleic acid molecule, a small inhibitory RNA (siRNA), a ribozyme, a triple helix molecule, an antibody, a

polypeptide, a peptoid, a polypeptide mimetic, a small inorganic molecule, or a small non-nucleic acid organic molecule.

5. (Original) The method of claim 1, wherein the polypeptide is localized to a region of a dividing cell other than the distal ends of astral microtubules in the presence of the test compound.

6. (Original) The method of claim 1, wherein the polypeptide is localized using immunocytochemistry.

7. (Original) The method of claim 1, wherein the polypeptide is fused to a reporter molecule.

8. (Original) The method of claim 7, wherein the reporter molecule is green fluorescent protein (GFP), β-glucuronidase (GUS), luciferase, chloramphenicol transacetylase (CAT), horseradish peroxidase (HRP), or β-galactosidase.

9. (Withdrawn) A method for identifying a compound that modulates expression of a *KIF18A* or *KLP67A* DNA sequence, the method comprising:

a) providing a test cell comprising a nucleic acid that expresses the KIF18A or KLP67A polypeptide and a control cell containing a nucleic acid that expresses the KIF18A or KLP67A polypeptide;

b) incubating the test cell with a test compound; and

c) detecting an increase or decrease in a *KIF18A* or *KLP67A* RNA or polypeptide population as compared to a *KIF18A* or *KLP67A* RNA or polypeptide population in a control cell,

wherein an increase or decrease in the *KIF18A* or *KLP67A* RNA population indicates that expression of the *KIF18A* or *KLP67A* DNA is modulated by the test compound.

10. (Withdrawn) The method of claim 9, wherein the increase or decrease in the RNA population is assayed by Northern blot, RT-PCR, or microarray analysis.

11. (Withdrawn) The method of claim 9, wherein the increase or decrease in the KIF18A or KLP67A polypeptide population is assayed by Western blot or ELISA.

12. (Withdrawn) A method for assaying for modulation of activity of a KIF18A polypeptide in a test cell, the method comprising:

(a) providing a dividing test cell containing a KIF18A polypeptide and a dividing control cell containing a KIF18A polypeptide;

(b) measuring spindle length in the dividing test cell and the dividing control cell; and

(c) determining either (i) the amount of KIF18A polypeptide in the test cell and the control cell, or (ii) the location of KIF18A polypeptide in the test cell and the control cell, or both (i) and (ii);

wherein the occurrence of a longer or shorter spindle in the test cell as compared to the control cell, and either (i) the amount of KIF18A polypeptide is different than the amount of KIF18A polypeptide in the control cell, or (ii) the location of KIF18A polypeptide in the test cell is different than the location of KIF18A polypeptide in the control cell, or both (i) and (ii), is an indication that the activity of the KIF18A polypeptide in the test cell is different than the activity of a KIF18A polypeptide in the control cell.

13. (Withdrawn) The method of claim 12, wherein the spindle length of the test cell is increased or decreased by 45-100%, as compared to the spindle length of the control cell.

14. (Withdrawn) The method of claim 12, further comprising determining whether a KIF18A polypeptide from the test cell contains an altered amino acid compared to a wild type KIF18A polypeptide.

15. (Withdrawn) A method for assaying for modulation of activity of a KIF18A polypeptide, the method comprising:

(a) providing a dividing test cell containing a KIF18A polypeptide and a dividing control cell containing a KIF18A polypeptide;

(b) measuring the angle between two ectopically localized prophase centrosomes in the dividing test cell; and

(c) determining either (i) the amount of KIF18A polypeptide in the test cell and the control cell, or (ii) the location of KIF18A polypeptide in the test cell and in the control cell, or both (i) and (ii);

wherein the occurrence of a 1-155° angle between the two prophase centrosomes in the dividing cell, and either (i) the amount of KIF18A polypeptide is different than the amount of KIF18A polypeptide in the control cell, or (ii) the location of KIF18A polypeptide in the test cell is different than the location of KIF18A polypeptide in the control cell, or both (i) and (ii), indicates that the activity of the KIF18A polypeptide in the test cell is different than the activity of a KIF18A polypeptide in the control cell.

16. (Withdrawn) The method of claim 15, wherein the angle between the two prophase centrosomes in the dividing test cell ranges from 130-154°.

17. (Withdrawn) The method of claim 15, wherein the centrosomes are localized by using an anti-centrosomin antibody and immunocytochemistry.

18. (Withdrawn) The method of claim 15, further comprising determining whether a KIF18A polypeptide from the test cell contains an altered amino acid compared to a wild type KIF18A polypeptide.

19. (Withdrawn) A method for assaying for modulation of activity of a KIF18A polypeptide, the method comprising:

a) providing a dividing test cell containing a KIF18A polypeptide and a dividing control cell containing a KIF18A polypeptide;

(b) determining the shape of a spindle or astral microtubule in the dividing test cell and the dividing control cell; and

(c) determining either (i) the amount of KIF18A polypeptide in the test cell and the control cell, or (ii) the location of KIF18A polypeptide in the test cell and the control cell, or both (i) and (ii);

wherein the occurrence of a spindle or astral microtubule in the dividing test cell that is shaped differently than a spindle or astral microtubule in the control test cell, and either (i) the amount of KIF18A polypeptide is different than the amount of KIF18A polypeptide in the control cell, or (ii) the location of KIF18A polypeptide in the test cell is different than the location of KIF18A polypeptide in the control cell, or both (i) and (ii), indicates that the activity of the KIF18A polypeptide in the test cell is different than the activity of a KIF18A polypeptide in the control cell.

20. (Withdrawn) The method of claim 19, wherein the spindle or astral microtubule in the dividing test cell is banana-shaped.

21. (Withdrawn) The method of claim 19, wherein the spindle or astral microtubule is detected using an anti-α tubulin antibody and immunocytochemistry.

22. (Withdrawn) The method of claim 19, further comprising determining whether a KIF18A polypeptide from the test cell contains an altered amino acid compared to a wild type KIF18A polypeptide.

23. (Withdrawn) A method for assaying for modulation of expression of a *KIF18A* nucleic acid, the method comprising:

a) providing a test cell containing a *KIF18A* nucleic acid and a control cell containing a KIF18A nucleic acid; and

(b) determining a level of an RNA encoded by the *KIF18A* nucleic acid in the test cell and in the control cell,

wherein an increase or decrease in the level of RNA encoded by the *KIF18A* nucleic acid in the test cell compared to the level of RNA encoded by the *KIF18A* nucleic acid in the control cell indicates that the expression of a *KIF18A* nucleic acid is modulated.

24. (Withdrawn) The method of claim 23, wherein the level of RNA is monitored by Northern blot, RT-PCR, or microarray analysis.

25. (Withdrawn) The method of claim 23, further comprising determining whether the *KIF18A* nucleic acid from the test cell contains a mutation.

26. (Withdrawn) A method for assaying for modulation of expression of a *KIF18A* nucleic acid, the method comprising:

a) providing a test cell containing a *KIF18A* nucleic acid and a control cell containing a *KIF18A* nucleic acid; and

b) determining a level of a KIF18A polypeptide encoded by the *KIF18A* nucleic acid in the test cell and in the control cell,

wherein an increase or decrease in the level of KIF18A polypeptide encoded by the *KIF18A* nucleic acid in the test cell compared to the level of polypeptide encoded by the *KIF18A* nucleic acid in the control cell indicates that expression of the *KIF18A* nucleic acid is modulated.

27. (Withdrawn) The method of claim 26, wherein the level of KIF18A polypeptide in the test cell and in the control cell is determined by Western blot or ELISA.

28. (Withdrawn) The method of claim 26, further comprising determining whether the *KIF18A* nucleic acid in the test cell contains a mutation.

29. (Withdrawn) A method for modulating the activity of a KIF18A polypeptide or a KLP67A polypeptide, the method comprising:

a) contacting a *KIF18A* nucleic acid or *KLP67A* nucleic acid with a modulating agent in a concentration sufficient to modulate transcription of the nucleic acid;

b) contacting a cell expressing a *KIF18A* nucleic acid or *KLP67A* nucleic acid with a modulating agent in a concentration sufficient to modulate translation from an RNA encoded by the nucleic acid; or

c) contacting a cell expressing the KIF18A polypeptide or KLP67A polypeptide with a compound that binds to the polypeptide in a concentration sufficient to modulate the activity of the polypeptide.

30. (Withdrawn) The method of claim 29, wherein the modulating agent is an antisense nucleic acid molecule, a small inhibitory RNA (siRNA), a ribozyme, a triple helix molecule, an antibody, a small inorganic molecule, or a small non-nucleic acid organic molecule.

31-41. (Canceled)

42. (New) The method of claim 2, wherein the KIF18A polypeptide consists of the sequence of SEQ ID NO:2.

43. (New) The method of claim 1, further comprising assaying spindle assembly or function of the test cell as compared to the control cell.

44. (New) The method of claim 1, further comprising assaying cell division in the test cell as compared to the control cell.

45. (New) The method of claim 1, further comprising determining whether the test compound binds to the KIF18A polypeptide.

46. (New) The method of claim 8, wherein the reporter molecule is green fluorescent protein (GFP).

47. (New) The method of claim 8, wherein the reporter molecule is β-glucuronidase (GUS).

48. (New) The method of claim 8, wherein the reporter molecule is luciferase.

49. (New) The method of claim 8, wherein the reporter molecule is chloramphenicol transacetylase (CAT).

50. (New) The method of claim 8, wherein the reporter molecule is horseradish peroxidase (HRP).

51. (New) The method of claim 8, wherein the reporter molecule is β-galactosidase.